

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

MICHAEL A. CICOLELLO and DOROTHY DeMARIA, h/w, Plaintiffs,	: : : : : : : : : :	CIVIL ACTION
v.	:	No. 2: 06 - 3327
CATERPILLAR INC., Defendant.	: : :	

MEMORANDUM OPINION

DAVID R. STRAWBRIDGE
UNITED STATES MAGISTRATE JUDGE

January 22, 2008

I. Introduction

Plaintiffs Michael Cicolello and his wife, Dorothy DeMaria (alternatively “Plaintiff” or “Mr. Cicolello”) brought this action against, *inter alia*, Defendant Caterpillar Inc. (alternatively “Defendant” or “Caterpillar”).¹ Mr. Cicolello seeks monetary relief for physical harm resulting from an accident in which his hand was caught in an in-running nip point of a sheave block of a Caterpillar Model 571G Pipelayer (the “Pipelayer”). Ms. DeMaria seeks damages for loss of consortium. The parties consented to magistrate judge jurisdiction. (Doc. 26).

Defendant sought a pre-trial determination pursuant to *Azzarello v. Black Brothers Co.*, 391 A.2d 1020 (Pa. 1978), and its progeny that the Pipelayer, as a matter of law, is not “unreasonably dangerous” and that recovery for the Plaintiff would therefore not be justified. (Doc. 38). We granted Defendant’s request for a hearing on this issue (Doc. 71), and a hearing was held on January 16, 2008. This Memorandum Opinion is offered in connection with this Court’s order of January

¹ Caterpillar Tractor Co. and Caterpillar Paving Products, Inc. were also named as defendants but were dismissed by stipulation. (Doc. 75).

17, 2008, wherein we announced our conclusion “that recovery for plaintiffs would be justified and this cause will proceed to trial such that the jury may determine whether the facts of the case support the averments of the Complaint.” (Doc. 76).

II. The *Azzarello* Pre-Trial Risk-Utility Determination Requirement

Defendant has correctly argued that it was entitled to a pre-trial determination on the question of the risk and utility of the Pipelayer as compared to the risk and utility of the alternative design proposed by Plaintiffs. This trial court obligation was first set forth by the Pennsylvania Supreme Court in *Azzarello*. In that case, the court ruled that “[i]t is a judicial function to decide whether, under plaintiff’s averment of the facts, recovery would be justified; and only after this judicial determination is made is the cause submitted to the jury to determine whether the facts of the case support the averments of the complaint.” *Azzarello*, 391 A.2d at 1026. The following determinations are deemed “questions of law” whose outcome depends upon a consideration of social policy: “Should an ill-conceived design which exposes the user to the risk of harm entitle one injured by the product to recover? Should adequate warnings of the dangerous propensities of an article insulate one who suffers injuries from those propensities? When does the utility of a product outweigh the unavoidable danger it may pose?” *Id.*

This standard has been followed in subsequent Pennsylvania Superior Court holdings which make clear that we are to take an active and meaningful role in determining the answer to the social policy question and are even required to go so far as taking on the dual role of “social philosopher” and “risk-utility economic analyst.” *See, e.g., Foley v. Clark Equip. Co.*, 523 A.2d 379, 382 (Pa. Super. Ct. 1987) (noting that, under *Azzarello*, “the determination of defectiveness is to take place in two stages. First, the trial court must weigh the relative risks and utility of the product and

determine whether, as a matter of social adjustment, the imposition of liability would be justified. Only after this judicial determination has been made is the case submitted to the jury”); *Fitzpatrick v. Madonna*, 623 A.2d 322, 324 (Pa. Super. Ct. 1993) (observing that the initial issue under *Azzarello* “is a question of law whose resolution depends upon social policy” and that the trial court “must balance ‘the utility of the product against the seriousness and likelihood of the injury and the availability of precautions that, though not foolproof, might prevent the injury’”) (citations omitted); *Riley v. Warren Mfg.*, 688 A.2d 221, 224 (Pa. Super. Ct. 1997) (“In answering this question [whether a product is unreasonably dangerous] a court is essentially making a social policy determination and acting as both a social philosopher and a risk-utility economic analyst.”).

The Third Circuit Court of Appeals has, in turn, ruled that a district court applying Pennsylvania law is required to adhere to *Azzarello* and make a “threshold legal determination whether the defect alleged, if proven, would render the product ‘unreasonably dangerous.’” *Barker v. Deere & Co.*, 60 F.3d 158, 166 (3d Cir. 1995). In *Surace v. Caterpillar*, 111 F.3d 1039 (3d Cir. 1997), the Third Circuit endorsed the application of seven specific factors in making the initial risk-utility determination, known as the Wade factors:²

- (1) The usefulness and desirability of the product – its utility to the user and to the public as a whole;
- (2) The safety aspects of the product – the likelihood that it will cause injury, and the probable seriousness of the injury;
- (3) The availability of a substitute product which would meet the same need and not be as unsafe;
- (4) The manufacturer’s ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility;
- (5) The user’s ability to avoid danger by the exercise of care in the

² These factors were first set forth by Dean John Wade in *On the Nature of Strict Tort Liability for Products*, 44 Miss. L.J. 825 (1973).

use of the product;

(6) The user's anticipated awareness of the dangers inherent in the product and their avoidability, because of general public knowledge of the obvious condition of the product, or of the existence of suitable warnings or instruction; and

(7) The feasibility, on the part of the manufacturer, of spreading the loss of [sic] setting the price of the product or carrying liability insurance.

Surace, 111 F.3d at 1046 (quoting *Dambacher v. Mallis*, 485 A.2d 408, 423 n.5 (Pa. Super. Ct. 1984), as citing *Wade*, 44 Miss. L.J. at 837-38).

III. Application of the Wade Factors

We now turn to a consideration of the application of these factors to the Caterpillar Pipelayer as designed and to a Pipelayer incorporating Plaintiff's alternative designs as set out in the papers, arguments of counsel, and the hearing testimony of the experts proffered by the parties. In doing so, we are unable to conclude "as a matter of law that the product was not unreasonably dangerous," *Surace*, 111 F.3d at 1049 n.10, and we thus will permit the case to go to the jury.

A. Wade Factors One and Two

These factors are straightforward. Factor one, regarding a product's general utility, favors Defendant. It is abundantly clear, and indeed Plaintiff does not suggest otherwise, that the Pipelayer machine certainly serves a useful purpose in the construction field.

Factor two, on the other hand, favors Plaintiff. As useful as the Pipelayer may be, it is self-evident that the in-running nip point hazard presented by this machine can pose a significant risk to a worker. This is evidenced by the very injury that occurred here – a worker's hand getting caught in one of the sheave block pulleys which led to the eventual partial amputation of three of the worker's fingers. As the deposition of Plaintiff's orthopedic expert, Dr. John Bednar, demonstrates,

“crush injuries” are exceedingly difficult to treat from a medical standpoint, as “between the crushing of the tissue and the pulling, the avulsion, that causes significant soft tissue damage, it will pull on blood vessels, which prevent them from being repairable.” (Dr. Bednar Dep. at 13). This, in turn, frequently leads to the amputation of the crushed portion of the hand. (*Id.* at 22-23). The degree of the severity of the potential injury associated with this in-running nip point clearly weighs in Plaintiff’s favor.

Further, we are convinced from our consideration of the evidence that the likelihood of such serious injury is not insignificant. Plaintiff’s human factors expert, Dr. Vaughn Adams, testified that engineers and safety experts have been well aware of the risk of this kind of injury from an in-running nip point of a pulley for about as long as pulleys have existed. This industry awareness is evidenced by industry and regulatory publications from the early 1970’s and by numerous patents for pulley guards designed to protect against these in-running nip points dating as far back as the early 1900’s. (Pl. Br. in Opposition at 4-6). Indeed, Plaintiff has pointed out that Caterpillar’s corporate designee, Charles Carl, conceded that Caterpillar was well aware of these risks. (Dr. Adams Report at 9, contained in Pl. Br. in Opposition, Ex. B).

B. Wade Factors Three and Four

The parties address the issues raised by these two factors not in the context of the availability of a substitute machine (factor three), but rather from the standpoint of considering the manufacturer’s ability to eliminate or minimize the unsafe characteristics of the Pipelayer’s unguarded sheave block without impairing its utility (factor four).³ The resolution of this question

³ We note that neither party offered any evidence pertaining to the cost of Plaintiff’s proposed alternative design. While the record will contain a few questions of Mr. Liebkemann
(continued...)

is clearly the most important issue for us to consider.

Quite simply, Plaintiff argues that the sheave blocks⁴ can be fitted with guards that would protect a worker from having his hand caught in the in-running nip point of the sheave block pulleys. (Pl. Br. in Opposition at 1-2). In support for this conclusion, Plaintiff presented the testimony of G. Fred Liebkemann IV, P.E., a professional mechanical engineer with 18 years of experience in design engineering. (Pl. Br. in Opposition at 3). Mr. Liebkemann, pointing to the existence of over 100 years' worth of patents for machines similar to a Pipelayer, testified that it was not difficult to design such guards for the Pipelayer sheave blocks. (*See, e.g.*, Mr. Liebkemann Report at 4, contained in Pl. Br. in Opposition Ex. E). Indeed, Mr. Liebkemann presented an actual physical design model of such a guard for the upper, or "fixed," block, and testified that his design would have prevented the sort of accident that occurred in this case – namely a worker's hand or fingers being caught in the pulley's in-running nip point. He further testified that his design would withstand the rigors of field application and that the Pipelayer, incorporating the sheave block guards, would not lose any of its utility.

Defendant, on the other hand, argues that incorporating guards onto the Pipelayer's sheave blocks is not a feasible alternative to the current design. Rather, Defendant, through its expert, Dr.

³(...continued)

posed by the Court, the responses were incomplete and certainly not definitive. We take the lead of the parties, however, and will not further address the point beyond observing that the relative cost of Mr. Liebkemann's guards would likely be insignificant as compared to the cost of the Pipelayer.

⁴ We understand that there is a dispute in the case about whether Mr. Cicolello's injury was caused by the nip point hazard in the upper or lower block. Given this circumstance, Plaintiff's design expert, Mr. Liebkemann, discussed two separate alternative designs. Defendant's evidence suggesting problems with the design appears (without specifically saying so) to relate principally to the upper block.

Pellow, and the Caterpillar corporate designee, Charles Carl, argues that such a design would create new risks that do not presently exist with the machine as designed. (Def. Mot. at 11). Defendant first argues that the incorporation of such a guard would diminish the versatility, and thus the utility, of the Pipelayer's pulley cables. (*Id.*). Defendant also argues that the cables would suffer "abrasion and cutting" damage from rubbing and grating against the edges of the guard. (*Id.*). Presumably this would, in turn, create a risk of a cable's snapping or breaking, with the very real danger of a multi-ton load falling onto and crushing a worker. (*See, e.g.*, Carl Dep. at 155, contained in Def. Mot. Ex. H). Defendant further suggests that the presence of a guard creates a problem of dirt pebbles and debris collecting inside the guard which would have the effect of grating against the machine's cables causing them to wear excessively and thus creating the greater risk of the cables breaking. (*See, e.g., id.*). Defendant also points out that Pipelayer operators regularly rely on their ability to see the sheave block pulley's movement in the operation of the machine and that a guard on the sheave blocks would inhibit the machine operator's view of that pulley, which in turn would create a danger of accidents causing harm to workers in the field. (*See, e.g.*, Pre-trial Conf. Tr. at 47-48).

Plaintiff addresses these concerns. Mr. Liebkemann testified at the hearing that the guards would not inhibit the machine's flexibility or utility in any significant way. Addressing the risk of cable rubbing against the edge of the guarded upper block, Mr. Liebkemann first noted that a protective softer material could be placed over the guard's harder edges and also pointed out that the upper block would deflect toward the lower, "traveling," block when a lateral load was applied. He said that under this circumstance the cable would rarely come into contact with the guard's edges and even if it would, the force exerted on the cable would be minimal. Further, to the extent that wear would occur, any hazard would be mitigated as the cables were regularly field inspected.

Regular field inspections would likewise mitigate any risk associated with dirt and debris being caught in the sheave block guard. Plaintiff further pointed out that the guard could be designed so as to be easily removable, thus allowing for the regular cleaning of any dirt and debris that otherwise might get trapped inside the guard. (Pl. Br. in Opposition at 2-3).

Defendant also asserts that guarding would affect operation of the Pipelayer by impairing the operator's visibility of the pulley movement. Mr. Liebkemann pointed out, however, that, as to the upper block, the guard would be applied only to the in-running nip point; as the lower block would be ascending, the cable would thus be visible from the back of the upper block and would not be obstructed. Likewise, Plaintiff argues that the cables themselves remain fully visible. As to the alternative shrouded sheave design for the lower block, Plaintiff points out that the shroud could easily be fabricated with perforations, as suggested by Exhibit J to Plaintiff's Brief in Opposition, a 1973 National Safety Council publication of *Guards Illustrated* which featured a guard so designed on its cover. Plaintiff also questions Defendant's claim that visibility of the pulley movement is as critical as suggested, at least as to the lower block, which is often working in a trench and is thus clearly not visible to an operator in any event. (*See, e.g.,* Pre-trial Conf. Tr. at 49).

What Defendant most persistently argues, however, is that the alternative designs proposed by Mr. Liebkemann have not been subjected to any testing in the field. (*See, e.g.,* Pre-trial Conf. Tr. at 50). Thus, according to Defendant, the question of whether the alternative designs would actually allow the Pipelayer to maintain its utility is a matter of speculation. We note, however, that Plaintiff has produced a working model of the proposed alternative design of the upper block. Plaintiff has demonstrated from this model how the design would eliminate the in-running nip point hazard of the existing design and would not create any significant new risks of concern. While we accept that

the model is not to precise scale and is not fabricated of the proper material, these limitations do not detract from the demonstrated elimination of the hazard. We also accept that, as Defendant has pointed out, these designs have not been field tested, but Mr. Liebkemann has provided the Court with reasonable explanations grounded in years of consulting engineering he had done with closely related sheave and pulley devices to convince us that the implementation of his designs would not impair the utility of the Pipelayer such as to outweigh the real and serious in-running nip point hazard. We also cannot help but note that Defendant has not come forward with any field testing or other data to show that the matters of concern they have raised have been supported by field experience. On balance, we conclude that factor four favors Plaintiff.

C. Wade Factors Five and Six

Factors five and six concern a consideration of the product user's ability to avoid the danger associated with the product through the exercise of due care (factor five) and the user's anticipated awareness of the dangers inherent in the use of the product (factor six). The "user" to be evaluated with regard these factors is an intended user of a product, who may or may not be a particular plaintiff in a particular case. *See Surace*, 111 F.3d at 1051. Here, however, Mr. Cicoello, an experienced laborer in the field, is certainly an intended user of the Pipelayer.

Upon application of these factors to this case we find a consideration of factor five favors Plaintiff and factor six favors Defendant. We do not consider factor six to be a significant issue, however, as Plaintiff concededly admits to an awareness of the danger associated with the Pipelayer.

This is offset, however, by a consideration of factor five where Plaintiff argues persuasively that even when the ordinary user exercises due care in working with the sheave blocks in the field environment he will not always be able to avoid the risk of danger. Indeed, the very scenario that

Plaintiff alleges to have occurred in this case shows that even experienced workers in the field exercising due care cannot always avoid the Pipelayer's dangers. Plaintiff, like the ordinary user, was operating the sheave blocks while working in a ditch when, due to some apparent miscommunication, the operator began to raise the cable, startling Plaintiff and causing him to lose his balance. This, in turn, caused him to instinctively reach out to grab the cable to keep from falling, whereupon his hand went upward along with the cable and into an in-running nip point of the upper sheave block, causing the injury.⁵ (Pl. Pretrial Mem. at 1-3). We accept Plaintiff's argument that while the intended user will be aware of the hazard, the conditions of an active construction site make it difficult, if not impossible, for him to always avoid the risk. We thus conclude that this factor weighs in favor of Plaintiff.

D. Wade Factor Seven

We do not consider factor seven, which concerns the feasibility of spreading out the risk of harm, to be in much dispute. Caterpillar, as the dominant player in the manufacture of the Pipelayer product line, is clearly in the position to absorb and therefore spread the risk of loss. We have not heard Defendant to suggest otherwise.

IV. Conclusion

Given our careful consideration of the papers, arguments of counsel and testimony offered at the hearing and taking into account the respective risks and utility of the 571G Pipelayer product and the proposed alternative design, and particularly in light of our resolution of the fourth Wade factor, we are unable to conclude "as a matter of law that the product was not unreasonably

⁵ While we recognize that there is a factual dispute about how the injury actually occurred, for the purpose of conducting this risk-utility analysis, however, we are required to assume the truth of the facts as Plaintiff avers them to be. *Azzarello*, 391 A.2d at 1026.

dangerous.” *Surace*, 111 F.3d at 1049 n.10. Further, we conclude that recovery for Plaintiffs would be justified under their version of the facts and that it is thus proper for the matter to proceed to trial so that the jury may determine whether the evidence supports the averments of the complaint.

For the foregoing reasons, we entered our order of January 17, 2008 permitting this cause to proceed to trial for a jury determination. (Doc. 76).

BY THE COURT:

/s/ David R. Strawbridge
DAVID R. STRAWBRIDGE
UNITED STATES MAGISTRATE JUDGE